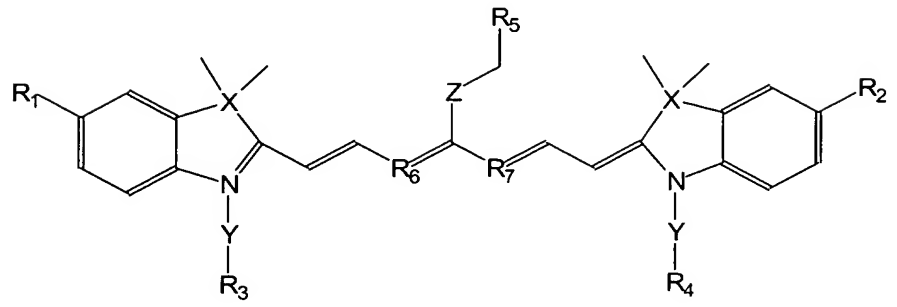
Claims

1. Indotricarbocyanine dye of general formula (I),



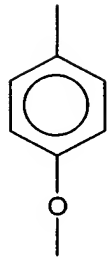
(I)

in which

X is O, S or C that is substituted in two places, whereby the substituents can be selected from methyl, ethyl, propyl, isopropyl and/or butyl,

Y is CH_2-CH_2 or CH_2-CH_2-CH_2,

Z is C_1 to C_5 alkyl, whereby the C atoms are optionally substituted by O or S, or is

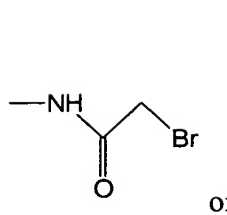


R_1 to R_4, independently of one another, are SO_3H or H, with the proviso that at least three of R_1 to R_4 are SO_3H,

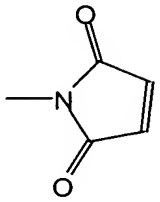
R_5 is -CO-NH-R_8-R_9, -NH-CS-NH-R_8-R_9 or -NH-CO-R_8-R_9,

in which R_8 is selected from the group that consists of unbranched C_2-C_{13} alkyl, in which C atoms are optionally replaced by O or S, and

R_9 is selected from



or



or chloroacetyl, bromoacetyl, iodoacetyl, chloroacetamido, iodoacetamido, chloroalkyl, bromoalkyl, iodoalkyl, pyridyl disulfide and vinyl sulfonamide, and

in which R_6 and R_7 are CH or are connected to a hexyl ring by a C_3-alkyl, which optionally can be substituted in para-position with a C_1 to C_4-alkyl radical, and salts and solvates of this compound.

2. Indotricarbocyanine dye according to claim 1, in which

Y is CH_2-CH_2,

Z is C_1 to C_5 alkyl, whereby the C atoms are optionally substituted by O or S, and

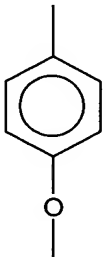
in which R_6 and R_7 are CH, and salts and solvates of this compound.

3. Indotricarbocyanine dye according to claim 1 or 2, in which

Z is C_1-C_5 alkyl.

4. Indotricarbocyanine dye according to claim 1 or 2, in which

Z is

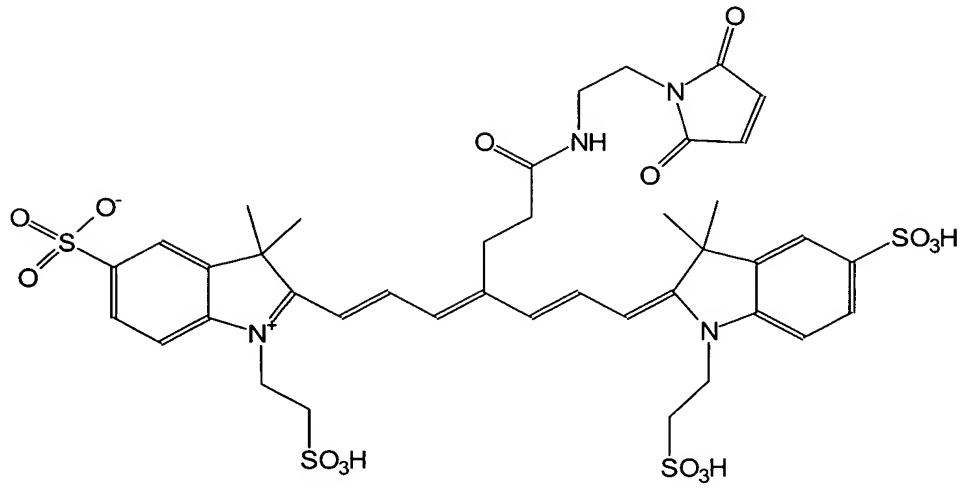


and R_6 and R_7 are connected to a hexyl ring via C_3-alkyl.

5. Indotricarbocyanine dye according to one of claims 1 to 4, in which

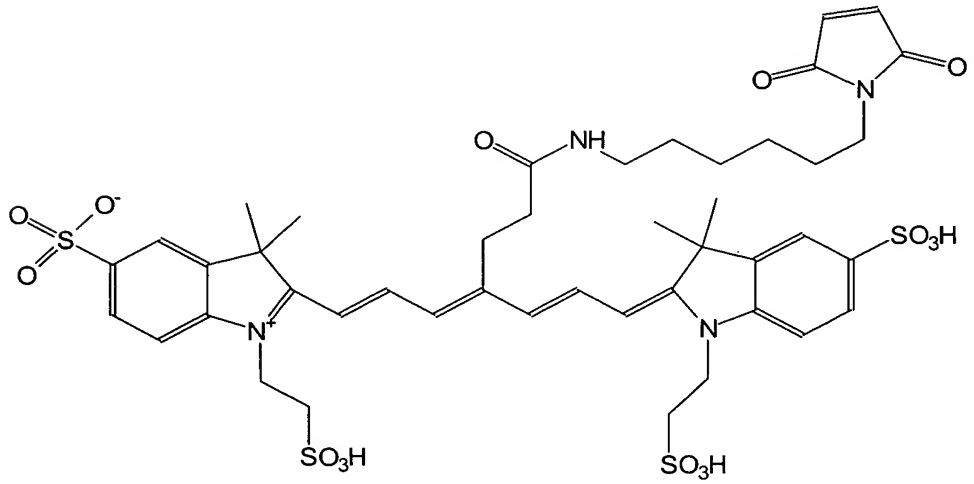
R_5 is COOH or NH_2.

6. Indotricarbocyanine dye according to claim 3 of formula (II)



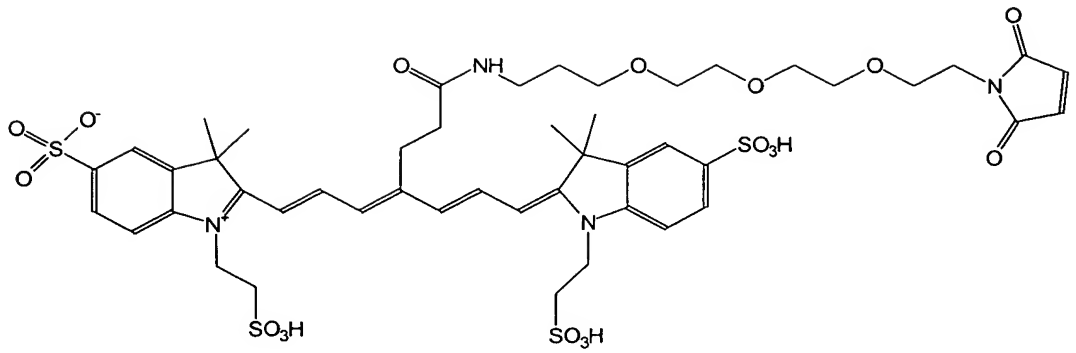
and salts and solvates of this compound.

7. Indotricarbocyanine dye according to claim 3 of formula (III)



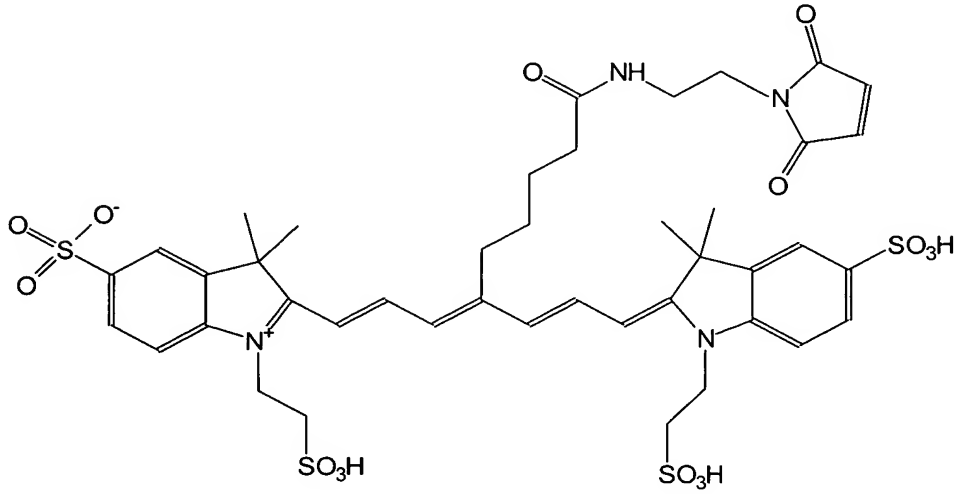
and salts and solvates of this compound.

8. Indotricarbocyanine dye according to claim 3 of formula (IV)



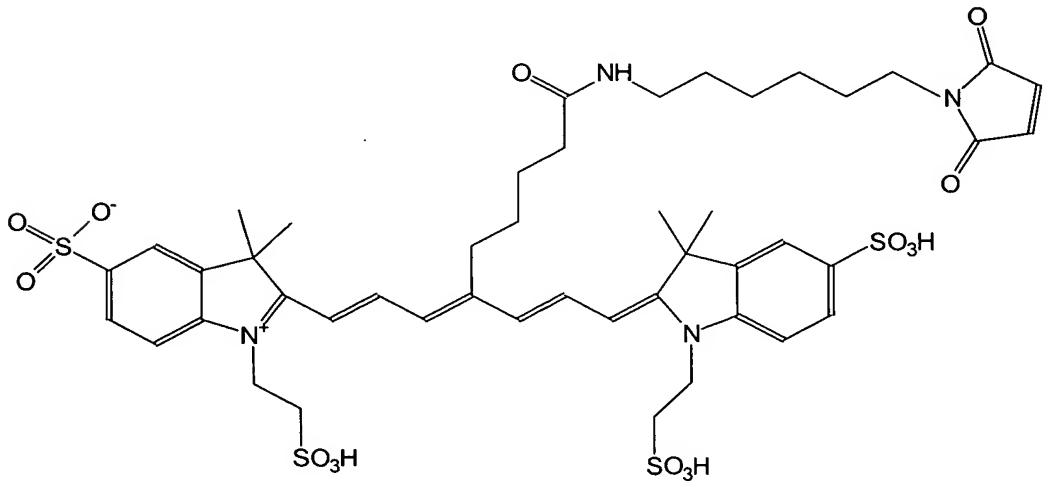
and salts and solvates of this compound.

9. Indotricarbocyanine dye according to claim 3 of formula (V)



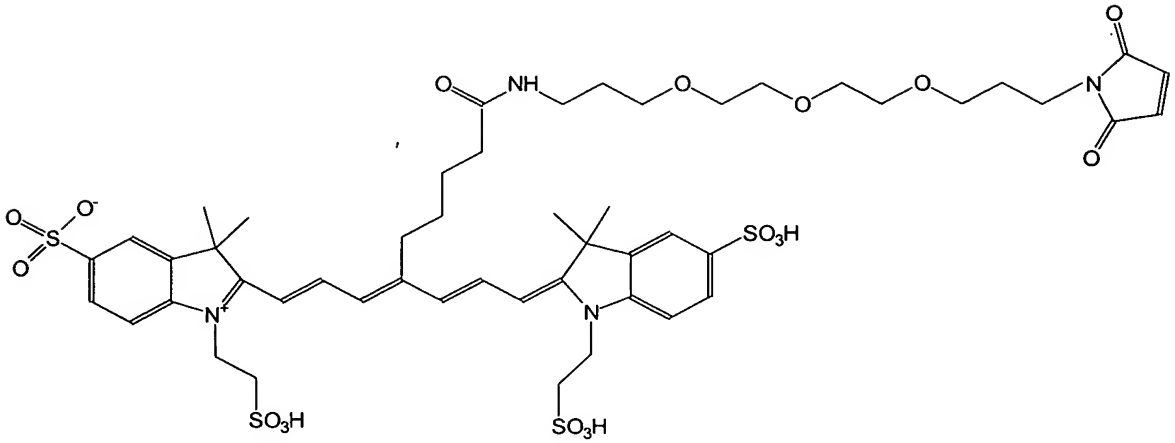
and salts and solvates of this compound.

10. Indotricarbocyanine dye according to claim 3 of formula (VI)



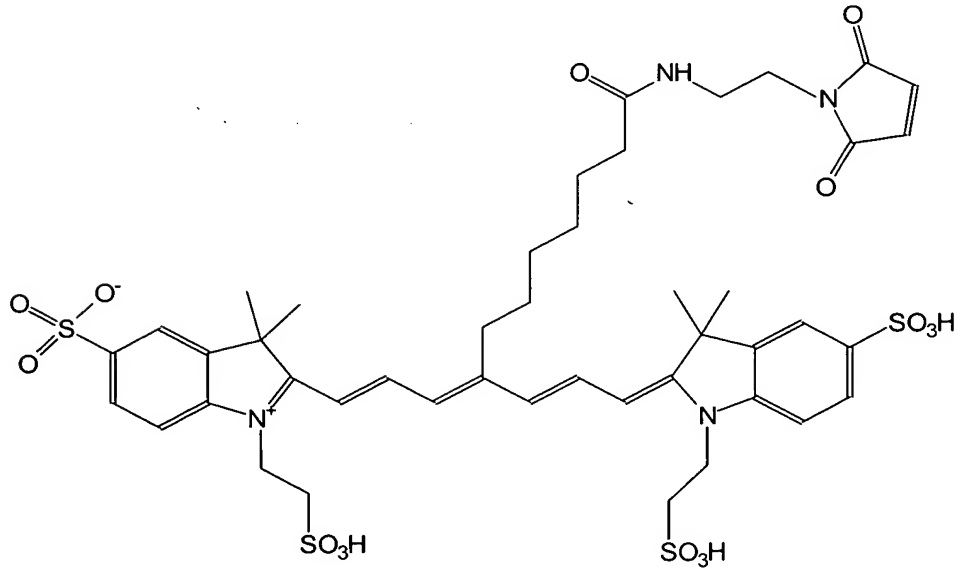
and salts and solvates of this compound.

11. Indotricarbocyanine dye according to claim 3 of formula (VII)



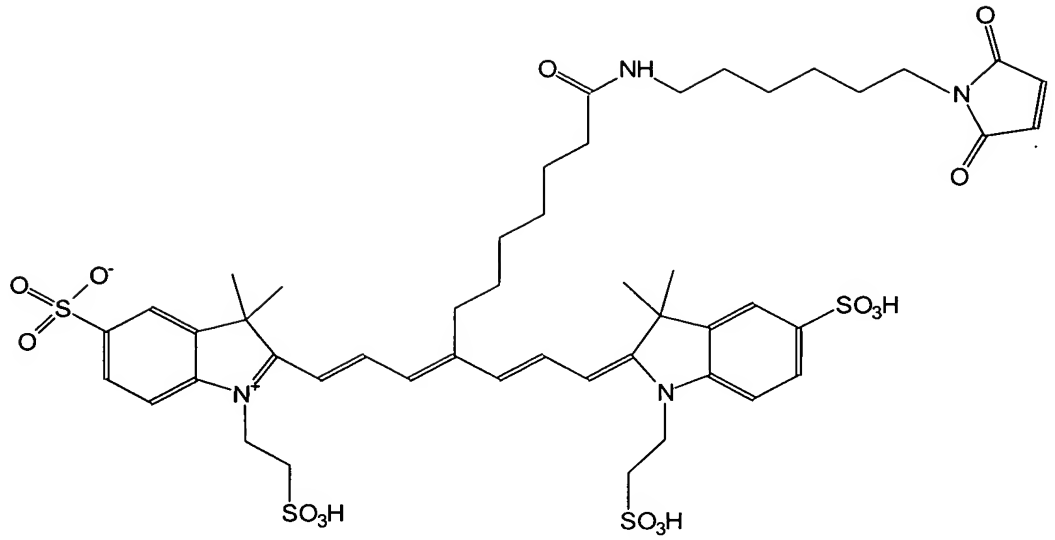
and salts and solvates of this compound.

12. Indotricarbocyanine dye according to claim 3 of formula (VIII)



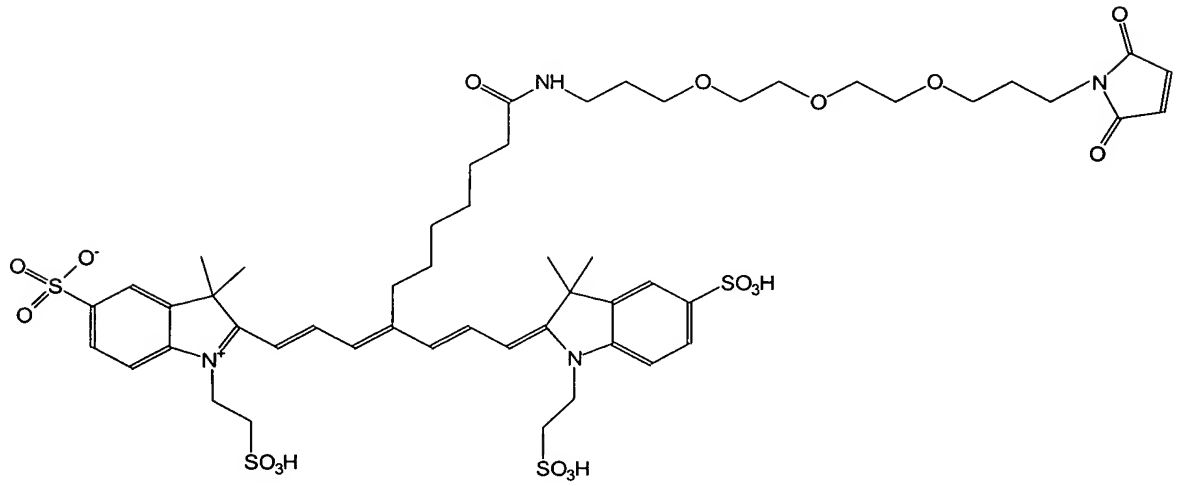
and salts and solvates of this compound.

13. Indotricarbocyanine dye according to claim 3 of formula (IX)



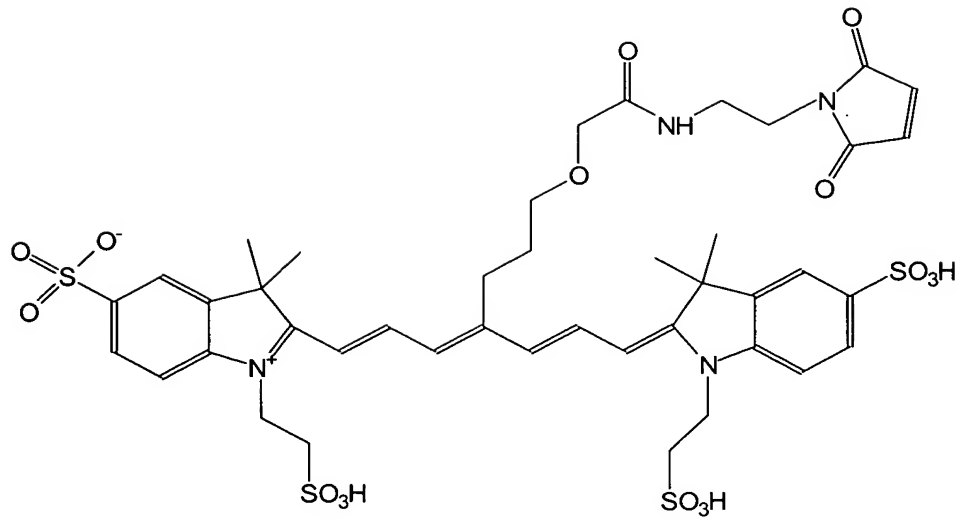
and salts and solvates of this compound.

14. Indotricarbocyanine dye according to claim 3 of formula (X)



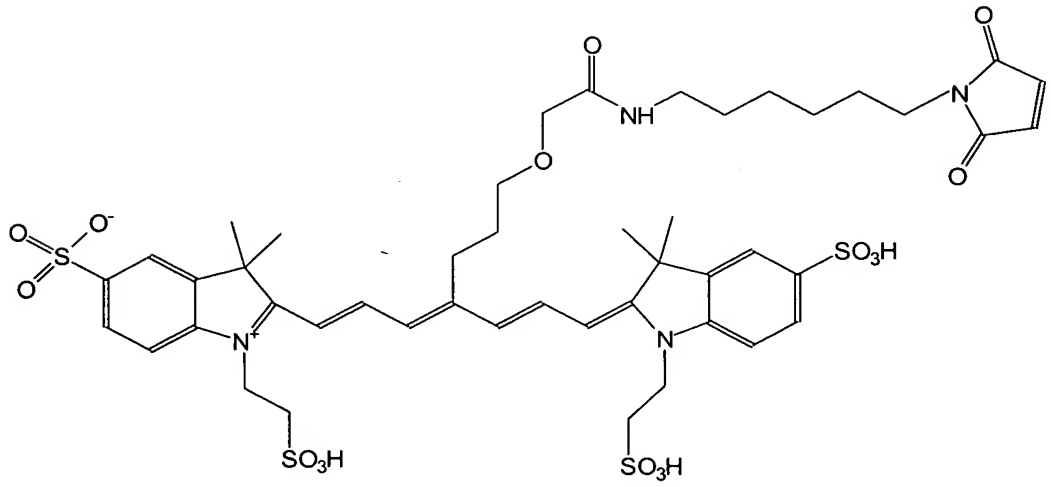
and salts and solvates of this compound.

15. Indotricarbocyanine dye according to claim 2 of formula (XI)



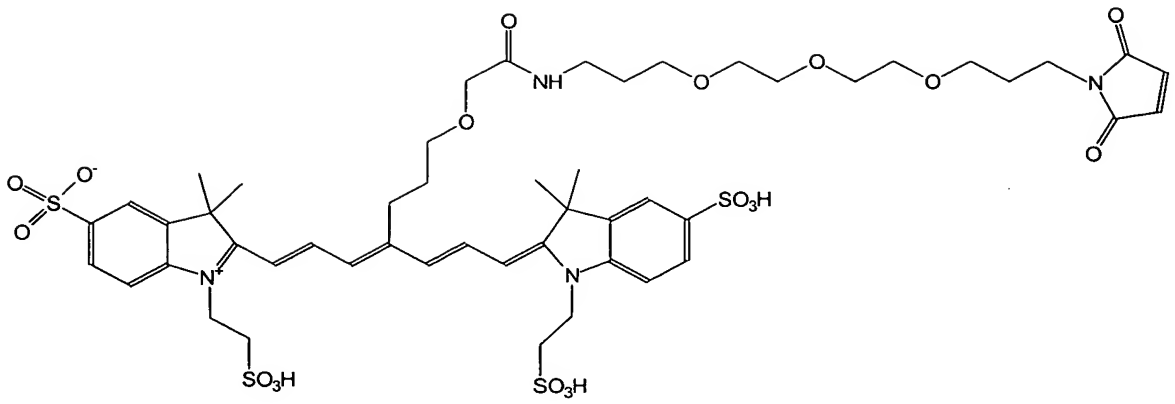
and salts and solvates of this compound.

16. Indotricarbocyanine dye according to claim 2 of formula (XII)



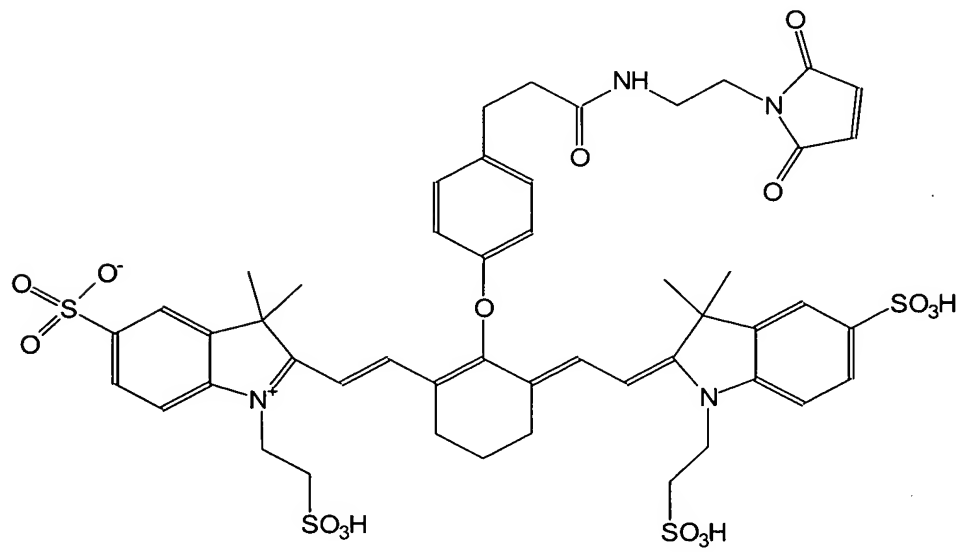
and salts and solvates of this compound.

17. Indotricarbocyanine dye according to claim 2 of formula (XIII)



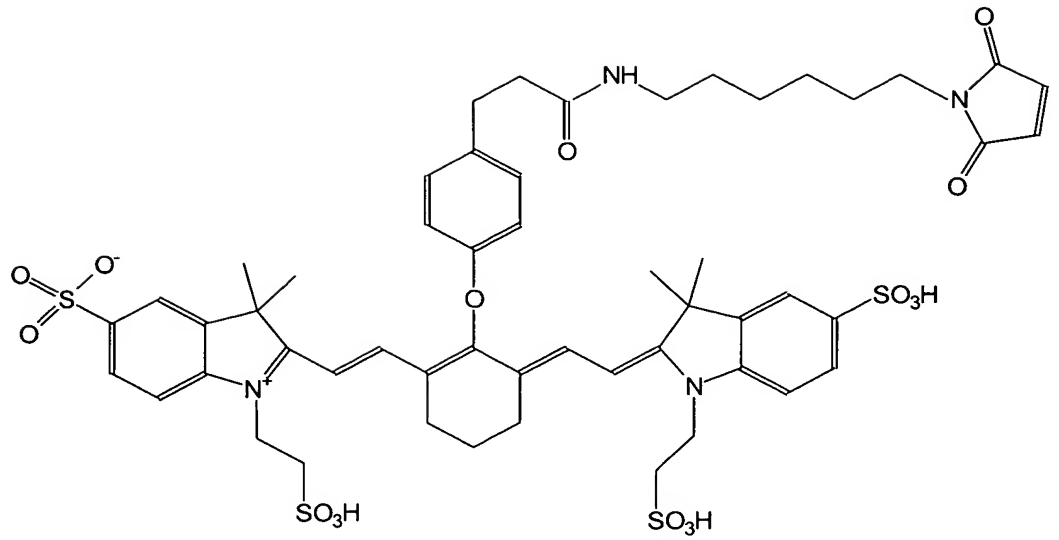
and salts and solvates of this compound.

18. Indotricarbocyanine dye according to claim 4 of formula (XIV)



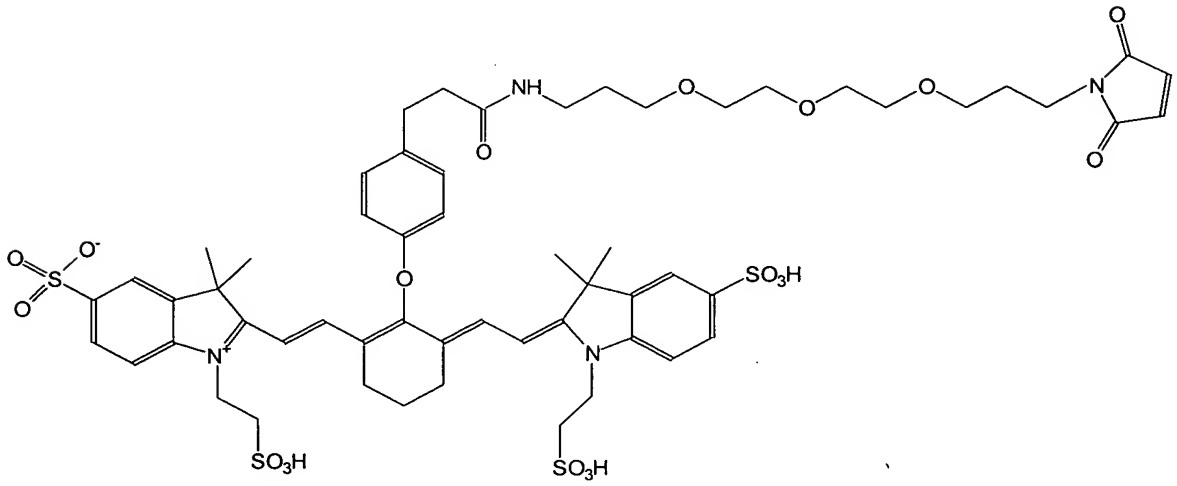
and salts and solvates of this compound.

19. Indotricarbocyanine dye according to claim 4 of formula (XV)



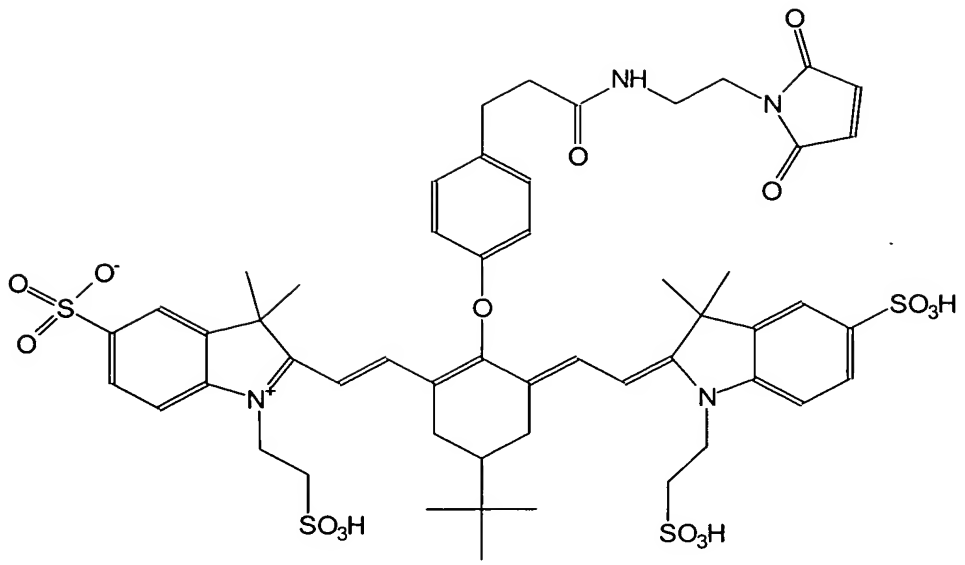
and salts and solvates of this compound.

20. Indotricarbocyanine dye according to claim 4 of formula (XVI)



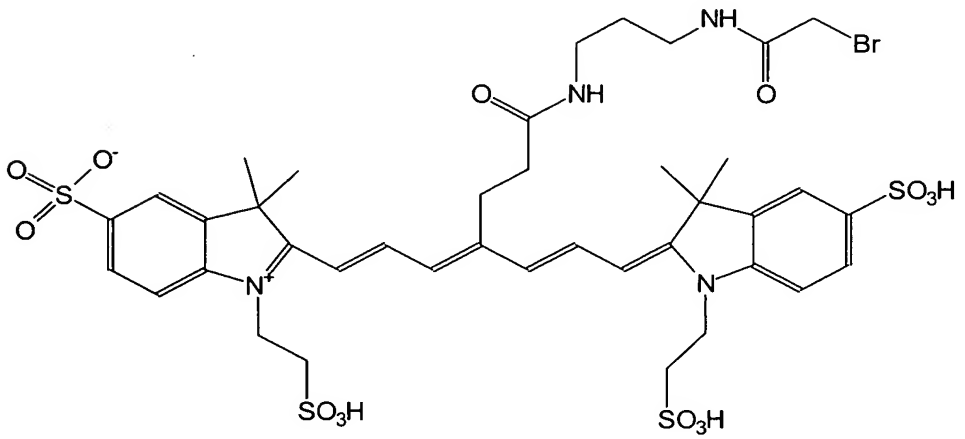
and salts and solvates of this compound.

21. Indotricarbocyanine dye according to claim 4 of formula (XVII)



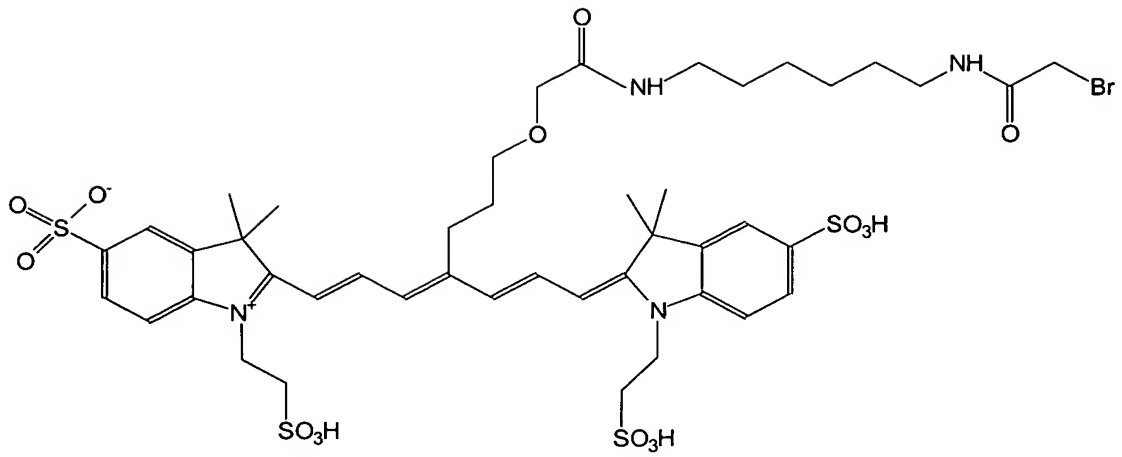
and salts and solvates of this compound.

22. Indotricarbocyanine dye according to claim 3 of formula (XVIII)



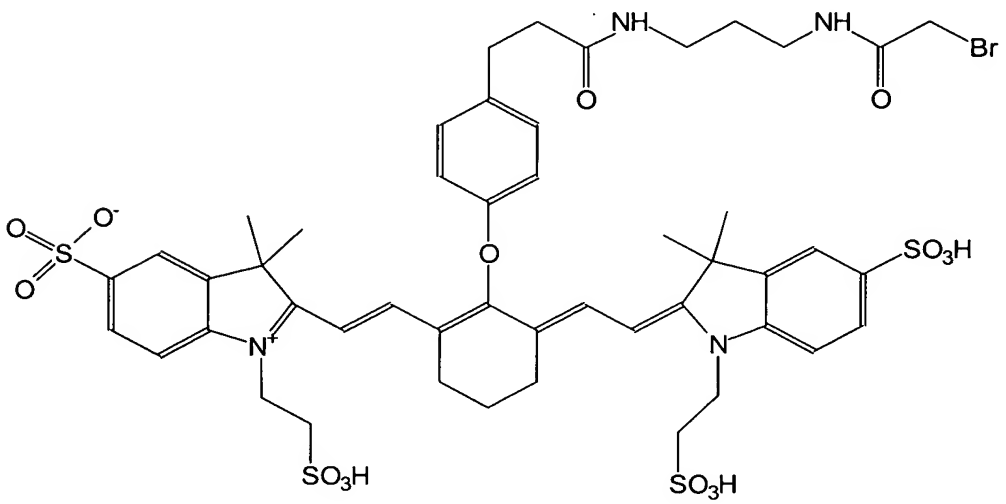
and salts and solvates of this compound.

23. Indotricarbocyanine dye according to claim 2 of formula (XIX)



and salts and solvates of this compound.

24. Indotricarbocyanine dye according to claim 4 of formula (XX)



and salts and solvates of this compound.

25. Process for the production of an indotricarbocyanine dye according to one of claims 1 to 24, comprising

a) Preparation of one or more 4-substituted pyridines,

b) Conversion of one or more 4-substituted pyridines in *meso*-substituted glutaconaldehyde-dianilides as precursors into cyanine dyes, by means of the Zincke-König reaction, and

c) Obtaining the *meso*-substituted glutaconaldehyde-dianilide as precursors to cyanine dyes.

26. Process for the production of a conjugate, comprising coupling of an indotricarbocyanine dye according to one of claims 1 to 24 with a biomolecule.

27. Conjugate of an indotricarbocyanine dye with a biomolecule, produced according to claim 26.

28. Conjugate according to claim 27, characterized in that as a biomolecule, it comprises at least one biomolecule that is selected from peptides, proteins, lipoproteins, antibodies or antibody fragments, nucleic acid, such as, for example, oligo- or polynucleotides from DNA or RNA, aptamers, PNA, and sugars, such as, for example, mono-, di-, tri-, oligo- and polysaccharides.

29. Conjugate according to claim 28, wherein the protein is selected from the group of skeletal proteins or soluble proteins of the body.

30. Conjugate according to claim 28 or 29, wherein the soluble protein is a serum protein, such as, for example, HSA, BSA, egg albumin, an enzyme, such as, for example, a peroxidase or an antibody, an scFv fragment or F(ab).

31. Conjugate according to one of claims 27 to 30, wherein the soluble protein has an affinity with respect to ED-B-fibronectin.

32. Conjugate according to one of claims 27 to 31, wherein the indotricarbocyanine dye is coupled to the biomolecule via an SH group, in particular via an SH group to a cysteine.

33. Diagnostic kit, comprising an indotricarbocyanine dye according to one of claims 1 to 24 and/or a conjugate according to one of claims 27 to 31, together with additional adjuvants for implementing an *in-vivo* diagnosis of, in particular, tumors.

34. Use of a conjugate according to one of claims 27 to 31 as a fluorescence contrast medium for *in-vivo* diagnosis of tumors.